

ITEMS OF INTEREST.

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Shots from the Profession.

COURTESY IN REFERENCE TO OTHER'S FAILURES.

DR. C. E. FRANCIS, NEW YORK.

In every trade and profession, some members seem to imagine that the only way to gain a reputation is to undermine the reputation of others. In efforts to reach the goal of fame they would make stepping stones of their fellows, and do them injury at every tread. Sensible people, however, distrust those who speak uncharitably of their compeers, so that frequently ungenerous comments reflect unfavorably on those who utter them.

When dismissing our patients, we are not always sure they will return to us for future treatment. In the course of time many get into other hands. Some remove to distant localities, and find it inconvenient or impossible to come again. Others, by nature, are inclined to wander and are fond of making changes. Some change with a view to economy; others perhaps, from lack of confidence or a fancied neglect. Some fail to return because bills for former operations remain unpaid, and such persons are usually ready to misrepresent or malign those whom they have defrauded.

Many an excellent and faithful dentist has been declared the author of discreditable operations which he never performed. Many have been charged with having inserted fillings (with assertions that they soon after "fell out,") in cavities that had never been touched by a dental instrument! The decay and destruction of entire dentures, resulting from sheer neglect and carelessness are often charged as malpractice on the part of some dentist who, in reality, simply introduced a single filling, or removed beds of calculus and polished the stained surfaces of enamel.

"Your dentist has shamefully neglected your teeth and allowed them to go to destruction;" remarked a New York dentist recently to

a lady, who, in emergency, called on him to quiet the rebellious demonstrations of an aching bicuspid. He did not succeed, and if this man had known the history of the case, he probably would not have ventured on so untruthful a statement. Fortunately, the lady rebuked him for the unjust insinuation.

To take for granted all that comes to our ears from disaffected or grumbling visitors is neither wise nor just, and certainly "fuel should not be added to the fire" by sympathizing with their complaints or endorsing their scandal.

There are various ways of doing injustice and injury to our neighbors, even without charging them with incompetency, or denouncing them as charlatans. A feigned look of astonishment when s routine their work, a significant shrug of the shoulder, or a disapproving shake of the head, will have the effect of undoing confidence in the operations of their former dentists, and sometimes prove more damaging than open denunciations. To ask if the doctor was not in a hurry when he filled their teeth—if the doctor *himself* performed the operations—if the work was not done by his student—if the doctor's eyesight is not failing him, etc., are insinuations that excite suspicion, and convey the idea that operations have been slighted. Nor does it make things smoother to add in a semi-apologetic manner that "the doctor was considered a pretty fair sort of a dentist *once*, but unfortunately he is getting old." All this is needless, and generally uncalled for. It inflicts injury on those to whom such references are made, and fills with distrust the minds of those who have received their attentions. And to sum up, no good whatever can result from such ungenerous criticisms.

The causes that tend to failures following dental operations are many, and when properly considered, it is a wonder failures are not more frequent. Very many individuals defer their visits to the dentist till driven by dire necessity to seek relief from pain, and it is then found their teeth are in a sad plight. Some teeth present large proximal cavities, or crowns so decalcified and broken down that reliable walls for the retaining of fillings can hardly be secured. Exposed pulps, congested pulps, dead pulps and alveolar abscesses manifest their presence; and yet it is often expected that such dilapidated and diseased organs be so restored as to be better than before they became so wretchedly neglected or abused.

People who are so carelessly and negligently are not entitled to a great degree of sympathy if trouble ensues. Some sufferers seem to obtain a little grim of satisfaction if they can only saddle the responsibility of their mishaps on others, and their dentist is, in some instances, a convenient scape-goat on whom to work their saddle.

When discontented parties come to us with their complaints, it is clearly our duty to vindicate as far as possible the good standing of our *confreres*, and at the same time remind our visitors that personal interest and vigilant care on their part is requisite to escape consequences of neglect.

A few days ago a letter came to me from Dr. Quinby, of Liverpool, in reply to a communication previously addressed to him concerning one of his patients that called on me for a little personal attention, when on a flying trip to this country. The doctor, in his letter, pictured the patient as a 'bird of passage;' he never thinks of attention to his teeth till just ready to start for some distant clime, then he allows such limited time for treatment that they cannot be properly treated." Dr. Quinby adds: "There is no satisfaction in trying to do anything for men who do not take an interest in their teeth themselves, men who try to make a sort of father-confessor of their dentist, getting absolution from him once a year, and throwing all their sins of omission and commission on his shoulders." Here we have a comprehensive essay in a few words, and from a fellow practitioner whose utterances are noted for wisdom and sound sense.

Let us do justice to others as we would wish justice done to ourselves, and may we never forget that professional courtesies of every sort are much like "bread cast on the waters," rewarding us with happy reflections, and inducing a reciprocation of kindly courtesies, with the hearty good-will and esteem of our professional brothers.—*Ind. Practitioner*.

IS DENTISTRY A BRANCH OF MEDICINE?

PROF. J. FOSTER FLAGG, PHILADELPHIA.

Dentistry is said to be a branch of medicine—its "parent" tree. It is not so. It is no branch; it never was a branch. This is so true, so markedly, so absolutely true, that even early in the history of its growth, when claims of branch-hood were advanced, they were officially investigated by the so-called "parent tree," and *the verdict was against the claim*.

This was then accepted, and Dentistry, finding itself dependent upon its own resources, struck out boldly *in its own behalf*.

It threw out roots—by no means roots for medicine!

It gained a trunk—not in the least a medical trunk!

It sent out branches as unlike anything ~~the~~ medicine had ever dreamed of, as is a fertile vale unlike a barren desert.

And so it grew, till it has become a tree—a tree of fair proportions, from which millions, aye, tens of millions of suffering humanity gain comfort *every year*!

This attribute of root development is strangely overlooked, and all the famous growth that comes from it is quietly ignored.

This I protest against. I advocate a full appreciation of this *root* support. I give my voice to free annunciation of this famous growth.

A specialty of medicine indeed! Medicine and Dentistry are kin, because both work for suffering humanity. But does that make of dentistry a "specialty"? Are there such things as Gyneccestry, Auristry, Oculistry? and, if not, why Dentistry?

It is because ophthalmic, aural, and gynecological practices are *rooted* in medicine.

It is because few—*very few indeed*—practice these "specialties" aside from general practice.

It is because teachings are given in these from special chairs attached to medical colleges—one chair for each specialty.

No *extended* special equipment is required, no large laboratories, with their numerous and complicated fixtures; no large clinic rooms, with their expensive furnishings; no NEW DERGEE, to indicate peculiar kind of knowledge. For dentistry all this is different. Three or four extra chairs are needed for even *ordinary* dental teaching.

Demonstrators are needed to instruct in application of these teachings, and if the branches on which it so constantly insisted the *specialism* of dentistry depends, are left to medical men to teach, they give poor support to those requiring dental information.

Anatomy! Of what avail are pelvic measurements to dentistry? Why should dentists give days of study to carpal and to tarsal bones? Why should dentists be drilled exhaustively in muscles of the legs and back and arms? A sculptor or a figure painter should know far more of these than *must* a dentist. But of anatomy such as *dentists* need, they should know thoroughly. The more, thus far, the better dentist.

Physiology. We find it here the same. A fair amount of general physiology is quite sufficient for the dentists' purpose, but dental physiology they cannot know too well; and do they get dental physiology from medicine? Far from it. Where do they get it? From dental text books, written by dental practitioners, and from work done by dental investigators directly in the interest of dentistry, without one thought of medicine.

Chemistry and Metallurgy. Chemistry is not medicine, nor of medicine. Medical chemistry is a specialty of chemistry, but so is dental chemistry, and medical chemistry; and dental chemistry are as distinct as two specialties of one science well can be. And when we come to metallurgy, medicine knows and cares but little for it; consequently says but little about it, while dentistry rolls it over its tongue as a delicious morsel and teaches it almost exhaustively.

Materia Medica. Here we can but laugh! Look at the medical materia medica. Look at the United States Dispensatory, Wood and Bache, fourteenth edition! A wonderful description of eight or ten thousand salts, roots, barks, herbs and compounds, ointments and tinctures, gums and extracts, with information as to what they are good for, and who says so! As dentists view this heap, it becomes a serious question as to whether it has *any* value.

To the "parent," medicine is priceless! but to the so-called "child," dentistry, it is practically useless. Not a tincture, from that of aconite to that of iodine, is made as dentistry would make it. Not an ointment, from *unguentum aconitiæ* to *unguentum hydrargyri oxidi rubri*, is prepared as dentistry would prepare it, nor are they half so good! Pastes, tinctures, solutions and compounds, in daily use by dentistry, are not mentioned; and yet on knowledge of all these depend the comfort of the patients and the success of the practitioners of dentistry.

A specialty of medicine! And when it is said that dentistry is "not a specialty of medicine," it is called a "bold declaration." As though all truths were not bold declarations! Was it not bold to say the earth moved? Was it not bold to say the earth was round? Was it not bold to say "all men are created equal?" If to say "Dentistry is not a specialty of medicine," be bold, the declaration is found in grand good company, and, like the others, is *as true as they*.

Even this review, while making a "*vital umbilical cord*," attaches dentistry to medicine through several generations (a most peculiar attachment between parent and child even through one generation), completely deprives itself of every particle of force by saying "Amen" to the position that "Dentistry is *more* than a specialty of Medicine." A boy is a boy, and a man is a man; and a man is not a boy, simply because he is *more* than a boy.

This is just what our whole argument means. No one has ever said dentistry never was in any way connected with medicine. No one has ever said dentistry did not think—fifty years ago—it *was really* a specialty of medicine. But what we do say now is, dentistry has grown beyond all this; dentistry owes *vastly more* to other sources than it owes to medicine—it recognizes its indebtedness most gratefully to all—but it feels its own ability in apprehension, digestion and assimilation, and it asserts, through these, its claims to *individuality*.

The more one knows of dentistry, the more these claims are recognized. The less one knows of dentistry, the less these claims are realized: and this is why we find M. D.'s, both in and out of dentistry, advocating for dentistry such marked dependence upon medicine.

This is their view, but I esteem it fortunate that they are few and we are many; that it is widely known and recognized that M. D. views of D. D. S. affairs are based on such superficial knowledge as that they may, with perfect truth, be styled *absurd*.

For the most part they are treated just as they deserve—passed over silently—but when presumption steps too far, and out of bounds, it is met as our Prof. Arthur met their great Prof. George B. Wood, and proved to be gross “ignorance.”

Year by year this state of things increases. As dentistry expands, as operations, instruments, medicaments, and materials, extend its possibilities, so lines of demarcation, indicative of a distinctive calling, augment in sharpness and become decisive.

Instead of approaching in the least more close to medicine, there is with every *dental* class that graduates, whether from dental college or medical university, increased preponderance of D. D. S.,—doctors of dental surgery; neither more nor less—dentists to practice dentistry—men who recognize their equal debt to all the varied sources from whence is culled the pabulum for dentistry. Men who propose to live by dentistry. Men who will think and delve, experiment and work, to broaden dentistry. Men who will teach dentistry, *dentistry*, DENTISTRY, till all thoughts of any dependence except *independence* shall have been forgotten.

SULLIVAN'S AMALGAM.

DR. GEORGE ELLIOTT, ENGLAND.

Probably the most commonly used amalgam in Europe is Sullivan's, or copper amalgam. It is made of copper powder and mercury, and, though there is some difference in the mode of preparation, the following will serve as an example: Copper dust 25 to 30 parts, precipitated from a solution of the sulphate, is put in a mortar and mixed with acid sulph., specific gravity 1.85; there is now added 70 parts of mercury, with constant stirring; it is then well washed with warm water, divided into convenient size pieces, and set aside to cool. When it is required for use, it is heated in a ladle, crushed and triturated in a mortar, when it will be found soft and ready for use. Any softness required may be obtained by the addition of more mercury. Some manufacturers direct that it should be washed in a solution of sulphuric acid, and subsequently in alcohol, to remove the dirty color; but I do not think it has been proved to be a useful process. We are sometimes told that it does not discolor the teeth, but I fancy it is like all other amalgams in this respect, that it discolors the most in soft, poorly-

formed teeth. In some cases, while the stopping becomes quite black, it does not stain the tooth in the least. In many cases the discoloration is sometimes extreme; and there can be no question that of all the amalgams in use this is the worst in this respect.

There is another objection to Sullivan's amalgam, almost as serious, and that is the wasting away often noticed on the surface, sometimes in two or three years a fourth or an eighth of the filling. As the great advantage possessed by Sullivan's consists in the antiseptic character of the copper employed, can we not get a similar result without the objection stated? Any good amalgam containing ten per cent. copper will probably be as good and will have the additional advantage of not being in itself so black, nor will it stain the tooth so badly, and of course will not be open to the objection of partial solution or disintegration.

DR. KNAPP'S CROWN AND BRIDGE WORK.

The *Dental Record*, London, says: Dr. Knapp, New Orleans, gave a demonstration recently, at Nelson's Hotel, Great Portland Street, W., on crown and bridge work. He showed the several steps in his method of making a solid gold crown with a porcelain face, and also of joining these to form "bridge-work." Great attention was given to detail, and the finished pieces were beautiful in their workmanship. The investment used was calcined marble dust and plaster, the great advantage of which is that it does not fly or crack in soldering. Another feature of the demonstration was the use of a modified oxy-hydrogen blow-pipe adapted to an ordinary nitrous oxide liquid gas bottle, and by an india-rubber tube to the common illuminating gas bracket. The mixt gases are conducted through a rubber tube $\frac{1}{8}$ -inch bore to a small metal tube, at the point of which combustion takes place. The pressure within the $N_2 O$ bottle gives a blast to the small-pointed pencils of flame of $\frac{1}{2}$ -inch in length. The great heat easily fuses the twenty-carat solder which is used, and the facility with which the instrument is manipulated enables the operator to melt the solder within the small and deep mold, which has only a narrow opening through which the flame can be inserted.—*Dental Cosmos*.

At the very moment you destroy the pulp of the tooth you destroy the connection of the tooth, so far as the crown of the tooth is concerned, and almost entirely with the ivory. A tooth is built up by the pulp and continues to be fed by the pulp as long as it lives, and when you cut off the pulp you destroy the vitality of the tooth and the tooth crumbles. In a good constitution it will take a long time; it may be twenty-five or may be forty years. The vitality of the crown of the tooth depends on the pulp.—DR. MORGAN.

SHALL I EXTRACT?

EDITOR ITEMS:

Will you, or any of your readers, give me the benefit of experience in the following case: A young lady, eighteen years of age, having all the permanent teeth except the third molars, yet retains the right upper deciduous cuspid. This cuspid is situated between the right permanent cuspid and the first bicuspid, and is small, white and firm. The first upper left bicuspid is partly rotated, yet has plenty of room. None of the teeth are crowded; on the contrary, considerable space exists between the lower teeth, and there is at least a line of space between the upper central incisors. The teeth are sound, well-shaped, show from molar to molar in laughing, and the front teeth project slightly. The occlusion is comparatively good.

Shall I leave the case alone to nature, or shall I extract the temporary tooth and await the eruption of the wisdom teeth, in the hope of the teeth moving forward and the spaces closing? or shall I extract and try at once to close the spaces by tightening a band anchored to the molars and pressing against the buccal and labial surfaces of the upper teeth?

C. H. THORN.

[Let them alone.—ED. ITEMS.]

WE ARE ALL FALLIBLE.

A dentist's experience is varied, and beset with difficulties, perplexities, and trials. He may be skilled in the dental art and possess the requisites that fit him for his calling, yet he cannot invariably overcome impending obstacles, nor count on uniform success. No man is infallible. If individuals do not see their own imperfections, others do, yet occasional ill success does not indicate absence of manipulative ability, nor a lack of talent or genius.

It is well to hesitate before condemning the operations of others, for it is possible no better results would have followed had like tasks, under similar circumstances, been attempted within our own doors. Before hurling offensive missiles at others, it may be wise to consider if the fortifications erected for our own shelter are not citadels of glass.

It is unfair to judge harshly from a failure observed, and to gauge its author accordingly; for perhaps other operations from the same source might exhibit evidences of marked skill and sound judgment. Unfortunately, some are too ready to pass unfavorable comment on the works of others, if faulty, without possessing sufficient generosity to credit them for achievements that are eminently successful, and that bear the stamp of excellence.—*C. E. Francis, New York.*

SOME QUEER OLD ADVERTISEMENTS.

Mr. Patence, Dentist and Dancing Master, No. 8 Bolt Court, Fleet Street, whose Ingenuity in making artificial Teeth, and fixing them without the least Pain, can be attested by several of the Nobility, and hopes to be honored by the rest of the Great—may depend his Study shall be devoted to the good of every Individual. His whole Sets, with a Fine enamel on, is a Proof of his excelling all Operators. He charges ten Guineas for a whole, five for an upper or under set, and half-a-Guinea for a single Tooth.—His Rose Powder for preserving the Teeth, is worthy to grace and perfume the chamber of a Prince.—His medicines for preventing all Infections and sore Throats have been experienced by several.—As for dancing, he leaves that to the multitude of Ladies and Gentlemen whom he has taught, and desires to be rewarded no more than his Merit deserves, nor no less. Public School nights Monday, Wednesday, and Friday evenings; Tuesday, evenings set apart for cotillions only.—N. B. His Rose Dentrifice may be had at Mr. Nesbits Toy Shop, Bishopsgate Street, and at his house, at 2 s. 6 d. the box. (The Gazetteer, December 1771.)

“Good entertainment for all that passes,—
Horses, mares, men, and asses.”

(From an ancient sign board.)

On the morning of September 28, 1736, all the tavern-signs in London were in deep mourning; and no wonder, their dearly beloved patron and friend Gin was de:unct—killed by the new Act against spirituous liquors! But they soon dropped their mourning, for Gin had only been in a lethargic fit, and woke up much refreshed by his sleep. Fifteen years after when Hogarth painted his “Gin Lane,” royal gin was to be had cheap enough, if we may believe the sign-board in that picture, which informs us that “gentlemen and others” could get “drunk for a penny,” and “dead drunk for twopence,” in which last emergency, “clean straw for nothing” was provided.

That excellent, and by all Physicians approved, *China* drink, called by the Chineans *Tcha*, by other nations *Tay* alias *Tee*, is sold at the Sultanness Head Cophee-House; in Sweeting’s Rents, by the Royal Exchange, London. *The Mercurius Politicus* (Sept. 30, 1658).

In the city of Philadelphia there are eight women physicians who have an annual practice of about \$20,000 each. There are twelve whose income averages about \$10,000 each. There are twenty-two who admit that their annual resource from their profession is above \$5,000 each.

THE DENTINE A LIVING SUBSTANCE.

PROF. CARL HEITZMANN, NEW YORK.

The dentine is a formation of connective tissue, and kindred with bone. In 1873 I was the first to assert that in bone tissue not only the bone corpuscles but also the basis-substance is alive. I proved the same in regard to all varieties of connective tissue, which are composed of a continuous mass of living substance, pervading the whole body and not interrupted anywhere. It was an important view, I should say, for the consideration and study of the animal body as such. Up to that time the notion had prevailed that we are composed of cells, which were thought to be individuals, and that we are built up on the plan of a chimney or a dwelling, in which a number of bricks are set on each other and stuck together with cement to build up the whole organization. With me there are no such cells, no such individual constituents of the body, but there is a continuity of living substance all through; one of the proofs of this was found in the bone, and later on also in the dentine. This view being novel, and having the tendency to upset all previous theories, was met, and is met still, with a great deal of opposition. But few men are capable of doing much thinking of their own. Most people, speaking in a general way, in any department of science, are scarcely doing more than chew the cud. What is accepted by the majority is considered as a dogma, and is adhered to with an obstinacy perfectly surprising. If a man appears who has no direct adherence to any school, and who tries to prove what he maintains in the laboratory under the microscope, comparatively few people can satisfy themselves of the correctness of his views, or the accuracy of the facts on which his views are based. That was the case with me and my theories for a number of years; but an excellent histologist in Europe has now, without any hesitation, acknowledged their correctness—namely, Professor S. Stricker, of Vienna, formerly my teacher. Prof. Stricker said it took him six years of work before he could satisfy himself of the truth of my assertions. Last year when in Vienna, Prof. Stricker showed me some specimens of living tissues, particularly the cornea or anterior membrane which covers the eye, that had been brought to a slight degree of inflammation. If you look at such a specimen of a cornea, without further treatment, you can see the motion of the living material all through the basis-substance. This is a strong proof of the correctness of my assertion that the basis-substance is alive also. The transparent animal tissues, especially the mesentery of a freshly killed frog as shown by Prof. Spina, demonstrate the same thing. It seems, therefore, that so long as we live we are changing the shape of our bodies, either by growth or by the locomotion that is going on throughout the tissues of the body. All tissues change their

shape and place to a limited degree, and this view would enable us to understand the circulation of the nourishing material, its ups and downs within the teeth, in which we notice great variation in their chemical composition, as before mentioned, even in the space of a few weeks.

DENTAL EDUCATION.

DR. PARSON SHAW, OF ENGLAND.

In the rush after the acquirement of mere facts, the schools ignore the great fact that cram is not the way to acquire wisdom, which is the legitimate end of all learning. Wisdom has been truly defined as the result of the application of knowledge to some useful end. Therefore, the maxim of "knowledge for the sake of knowledge" is the doctrine of simpletons. Moreover, crude facts merely stowed away in the external memory is not real knowledge (much less wisdom) and will not become such till put into practice and made a part of the life. The Great Master has pointed out that the way to know the truth is to do it, and in that statement, as in many others which we constantly ignore, laid down a fundamental law. There is no reason why we should not hit the proper medium in dental education; but if we are to sacrifice anything, then I say most emphatically, that we had better have unlettered men with proper finger-skill (and we have had many splendid dentists whose early education was limited) than to have unskilled men with nothing better than a superficial training of the school. So far from the school, as generally conducted, training the mind, my observation has been that the men who have the best trained minds have acquired that gift in the hard struggles of life. It is not the school-boy but the apprentice into whose mind it is drilled, day by day, that he must learn to think about his work. Let a man get a wife and children to support, and it will wonderfully sharpen his thinking faculties. And that is just the man that can be most useful to us in our discussions. Nor is it the man who can afford to run out to the depot for every little thing he may want, who can do us the most good; but it is the struggling dentist who must exercise his ingenuity and make the little things he wants. If you want to learn something useful in dentistry, find an intelligent man who has but few tools and appliances, but turns out good work. Necessity has made him a trained thinker. It is just these men we want in Dental Societies, if we can induce them to tell us what they have learned while struggling with their work and the grocer's, draper's and schoolmaster's bills. But some one may say, "Our's is not a mechanical trade, which requires no education." I am not contending that dentistry does not require a high degree of education; but let it be an education which makes a dentist. No

greater mistake can be made than to forget, or try to ignore the fact that dentistry is almost wholly mechanical, and that mechanics require a thorough education. We stand or fall by what we really are, and we shall fall into the contempt of all sensible men if we despise any part of our calling. Whatever else a dentist may be, he is essentially, from first to last, a mechanic. It is his duty therefore, not only to perfect himself in mechanical skill, but to honor, and not affect to despise, the mechanical art. If we pursue the right course, there will be no fear about dentistry being recognized as one of the learned professions, for it takes in as wide a range of study as any. Indeed, if we do our duty, it will be one of the most learned of all the professions.

TO MAKE DENTISTRY APPRECIATED.

DR. L. C. INGERSOLL, KEOKUK.

A dentist must have a high appreciation of *dentistry*; not a high appreciation of *himself* expressed in arrogant conceit, but a high appreciation of the value of dental science worked out in dental practice. The man who knows the most of dentistry must have the highest appreciation of its value.

It cannot be expected that the people, the laity outside the profession, will have a higher appreciation of dentistry than the dentist who represents the profession in the community. What they know of dentistry they learn from the dentists. Dentists are their only teachers. The truest value of the teeth can be learned only from dentists, for they have given the subject most attention.

The laity classify teeth as front and back teeth—esteeming that only the front teeth are of special value. The back teeth are regarded simply as a convenience, or as serving merely a mechanical support to the cheeks. If trouble occurs in a front tooth they are anxious to have it relieved, both to avoid the pain and a disfigurement of the face. But if a back tooth is in trouble and the pain is thought to be worse than the pain of extraction, its loss is decided on without hesitancy. Then as to the molars as a whole—each one is regarded as of one-twelfth the value of the whole. So they are as ready to sacrifice a first molar as a third molar. How is a patron to learn that,—other conditions being equal—*a first molar is worth a hundred times as much as a third molar*, if some intelligent dentist does not explain it, and that in proportion to its value it is important to save it? How are they to understand that molars are worth a hundred times as much as incisors, unless some intelligent dentist shall take the trouble to explain the relations of the two classes of teeth to the economy of life and health?

If it can be shown to a patron that teeth have an intrinsic value—not a merely fictitious and fanciful value—he will be as ready to pay for securing such value as for obtaining any other value.

A lady singer came to my office with a troublesome lateral incisor, from which she had suffered greatly with an abscess; and a worse trouble at the hands of a dentist who had drilled through the lateral wall of the canal and out through the alveolar process and the gum, at a point midway between the cervical margin and the apex of the tooth. I explained to the lady the nature of the trouble and the complications of disease involved, and she was disposed to have it out immediately. All her other teeth were good. I explained to her the effect of losing it,—the change it might make in her voice,—the trouble of a plate or of any other method of supplying an artificial tooth,—that this trouble was not for a few days or weeks only, but for forty or fifty years, and as long as she lived,—that there was no possible way of inserting a tooth without damaging other teeth—that she would mourn the loss of it all her days. She then asked what it would cost to treat it. With little thought of what it might cost, I replied, “It may cost you \$20.00.” Though it did cost, at ordinary charges, considerably more than that, as she was a girl without means except the earnings of her voice, I charged her no more than I at first intimated, which she pronounced reasonable and which she did not hesitate to pay. She had on her lips the praise of the virtues of false teeth. Suppose I had silently accepted it? This case serves to show the importance of explaining, in the minutest particulars, the far-reaching damage incurred by the loss of the teeth. To escape this long train of evils, she was willing to pay as liberally as her means would allow.

How many, outside of the dental profession, know there are diseased conditions in the mouth that lay the foundation for the worst forms of dyspepsia and a life-long trouble, and that this may begin in early childhood; that the nervous system may be completely undermined and the torture of neuralgia be made a habitual complaint, from no other cause than diseased teeth; that nutrition may become so impaired by dental diseases that a skeletonized body may present itself daily at a bountiful table and remain skeletonized?—*Ind. Practitioner.*

Prominent Dentists of Colorado are moving for a Dental Department in the Denver University. That's right.

Sulphate of potash is the best thing for hastening the hardening of plaster and preventing expansion. It should be employed in the impression and the cast by putting a dram or two into the water before adding the plaster.—*Western Journal*

NITROUS OXIDE AND VITALIZED AIR.

DR. L. P. LEONARD, MADISON, DAK.

Read before the Dak. Dental Society.

To be successful in the administration of nitrous oxide, you must first have a good apparatus. Do not try to administer gas if your apparatus is imperfect, for you may be assured the result will be embarrassing to you, and your patient. In my opinion there is no inhaler as nearly universal and perfect as the inflatable, owing to its flexibility, it can be adjusted to any person's face.

A gasometer is good, but if you haven't one, I think there is no way so handy as to have your gas apparatus attached to a bracket, so that it can be swung easily to or from the side of the chair. On a bracket table within reach, under cover, have all instruments that you may probably need. Thoroughly acquaint yourself with the work you have to do. Have every move that you think you may have to make, pictured out in your mind.

We should resort to some means that will tend to divert the patient's attention from the operation. After allaying my patient's fears and am ready to let on the gas, I tell him to count till he becomes unconscious, and to tell me on waking the number he stopt at.

I place a prop in the mouth; I don't believe in using corks nor rubber chunks; patients don't like them. The nickel plated ones graded in size are best.

All things being ready, the assistant turns on the gas; at about the same time I place the inhaler to the face, but not admitting the gas till after a few quiet, normal respirations. By doing so there is scarcely ever any trouble after my patient commences to inhale the gas. The effects of the gas are generally as follows:

1st. There is dizziness and noise, followed by intoxication, acceleration, and a general uplifting of the system, tingling sensation extending to the extremities, and a fulness of the chest, followed by insensibility to pain, though, perhaps, consciousness is retained. It is important to remember that we can be conscious, and yet not be susceptible to pain. Soon there is complete anesthesia, marked by a blueish purple, livid and ghastly looking countenance, with stertorous breathing and rigid muscles. Just before this stage, have your assistant remove the cover from the instruments.

The surgical period being reached, grasp the necessary forcep in one hand, pass the inhaler to your assistant with the other, and commence extracting with a firm and determined nerve.

The phenomena of anesthesia and the physiological action of the gas is indeed wonderful. True, there is more oxygen in the gas than in air, yet the latter stages of anesthesia, especially if the gas is continued too long, are precisely those of asphyxia. The explanation is this: air is composed of 21 parts oxygen and 79 parts nitrogen. The gases are simply mixt, having no molecular union. This accounts for the readiness in which oxygen is taken up, and carbon dioxide given out in the pulmonary circulation.

Nitrous oxide, as above stated, has but two parts nitrogen to one of oxygen, but it is a chemical compound, held together by chemical affinity, which is not overcome at the ordinary temperature of the body; consequently the gas itself undergoes no change, but is given out the same as when it entered the lungs and blood. By this we see that during the inhalation of nitrous oxide, but very little carbon dioxide leaves the blood. But on the contrary, as Gorgas states, "the blood ceases to be oxygenated, carbonic acid accumulates, and the centers of conscious impression become inactive, in consequence of a deficient supply of oxygen, and an excess of carbonic acid.

The time and the amount required to produce anesthesia, varies with the idiosyncrasy of the individual. The time, if the gas is inhaled properly, is usually from 30 seconds to one minute and a half. The amount of gas required being usually about 6 gallons.

The following are some of the dangers connected with its administration. If, after the surgical period is reached, the administration of gas is continued, ultimately there is a cessation of respiration and circulation. Owing to the affinity which the system has for oxygen, and the lack of oxygen therein during the administration of gas, nature puts forth all efforts to obtain it, and to establish equilibrium; hence dyspnea, and in fact the last effort is an inspiration.

In regard to the cessation of the heart's action, Foster speaks as follows: "At first the circulation is increased, followed by a constriction of the arteries, and an increased peripheral resistance. This peripheral resistance, while indirectly helping to augment the force of the heart beat, is a direct obstacle to the heart emptying itself of its contents. On the other hand, the increased respiratory movements, favor the flow of venous blood toward the heart, which in consequence, becomes more and more full. The increased resistance in front, the augmented supply from behind, and the long pauses between the strokes, all concur in an increasing distention of the heart. The distension of the cardiac cavities, which at first is favorable to the heart-beat, becomes injurious as it increases.

At the same time, the cardiac tissues, which at first are probably stimulated, after awhile become exhausted by the action of the venous

blood, and the strokes of the heart become feebler as well as slower. As the quantity which passes from the heart into the arteries becomes less, second by second, the pressure gets lower and lower, the descent being assisted by the exhaustion of the vass-motor center till it almost sinks to zero before the last beats. Thus, at the close of asphyxia, while the heart and the veins are distended with blood, the arterial system is less than normally full." From this we see that invariably, death ensues with expanded lungs and heart.

While under the influence of gas, there is anesthesia and asphyxia minus convulsions. The absence of the latter is caused by anestheization of the convulsive nerve centre and medular oblongata. Here lies the great danger, viz: that there is scarcely ever any convulsions to warn us that death is nigh at hand. But on the contrary, the patient sleeps calmly and quietly, and may die without the operator knowing it. Deeming a knowledge of the phenomena of asphyxia is of vast importance to the dentist, I quote you the following from Foster: "We are able to distinguish three stages in the phenomena which result from a continued deficiency of air:—

1st. A stage of dyspnea, characterized by an increase of the respiratory movements, both of inspiration and expiration.

2d. A convulsive stage characterized by the dominance of the expiratory efforts and culminating in general convulsions.

3d. A stage of exhaustion in which lingering and long drawn inspirations gradually die out. These inspiratory gasps spread into a convulsive stretching of the whole body, and with extended limbs and straightened trunk, the head thrown back, the mouth wide open, the face drawn and the nostrils dilated, the last breath is taken in."

Vitalized air is a mixture of nitrous oxide, chloroform and alcohol. For its administration it is necessary to have an attachment to the cylinder, which generally consists of a dial and set-screw to regulate the vapors; there is also a reservoir, or chamber, in which equal parts of chloroform and alcohol are placed. (The alcohol being used principally for its stimulating effects.) The gas, on reaching this chamber, takes up a certain quantity of the vapors of the chloroform and alcohol, making anesthesia longer and more profound; but of course not without additional danger.

The vapors of chloroform and alcohol should not be turned on till the patient is about one-fourth anesthetized, when they should be gradually increased, till there is complete anesthesia. However, I will say I do not think its use is practicable, especially if you have not a competent assistant to regulate the vapors.

When fatal symptoms appear, press the chest to bring about an expiration. Then steadily raise and draw the arms forward, to bring

about inspiration. Repeating this, or any other method, that will contract and expand the thoracic cavity about sixteen times per minute.

DISEASES OF THE ROOT MEMBRANE.

DR. L. C. INGERSOLL, IN HIS DENTAL SCIENCE.

The etiology of this disease, in the mouths of men, is a general hyperemic condition of all the soft tissues of the mouth produced by the use of intoxicants and tobacco; in the mouths of women, it may be caused by enfeebled nutritive functions and disordered nerves, and in both by want of cleanliness. The *exciting* causes are salivary calculus, decomposition of foreign matter about the necks of teeth, mechanical injuries produced by mastication, the friction of the tooth brush, wounds by a tooth pick, displacements of teeth by extraction of others producing abnormal occlusions, mercurial poison, and a very active series of inflammatory conditions caused by inflammation and death of the dental pulp. The symptoms of acute inflammation of the root membrane are:

Uncomfortable sensations produced by cold and warm food and drinks; tenderness to the touch; hurt on occlusion of the jaws, followed by intermittent pain; and a feeling of elongation of the tooth.

Though this feeling may at first be imaginary only, because of the acute pain on touch, it comes to be real through a thickening of the root membrane by inflammation.

A good treatment of acute inflammation of this membrane is Capsicum, and oil of cloves; the latter as a pain obtundent, and the former as a persistent stimulant. First apply the oil of cloves to the gum and the neck of the tooth, then apply "a capsicum plaster" or a pad of the heaviest blotting paper, on one side of which the extract of capsicum is placed, and the other side gum shellac varnish,—it is far superior to iodine; a hot foot bath is also of great service.

CHRONIC INFLAMMATION OF THE ROOT MEMBRANE.

The symptoms are: Looseness, redness of the overlying gum, not sensitive to touch or to mastication of soft food, but will not bear severe pressure, and is subject to attacks of acute inflammation. *Treatment:* Same as for the acute, milder and longer continued, with the free use of astringents.

Excementosis is a secondary deposit of cement on the roots of teeth in irregular patches along the sides of the roots, or in nodular masses about the apices. It is caused by chronic irritation and inflammation of the periodontal membrane.

Its symptoms are an undefined neuralgic irritation.

THE ODONTOBLASTS AND NERVES OF TEETH.

PROF. CARL HEITZMANN, NEW YORK.

The odontoblasts are at the periphery of the pulp tissue. It has been asserted by Tomes that the dentinal fibrils arise from the odontoblasts, being their direct off-shoots. This is correct so long as the odontoblasts resemble epithelia; but as soon as there is a transformation of them into medullary or embryonic corpuscles, there rises a number of delicate fibrils between the former odontoblasts. In many instances where the odontoblasts were fully developed, the fibrils were traced from their periphery, but when the odontoblasts have changed into medullary elements, we can see the fibrils which we call dentinal fibrils, run between the odontoblasts, and either directly or indirectly through the network of living substance in connection with nerve fibers. It has been maintained that this transition is a direct one, but this seems not to be the case, at least with most of the pulps I have seen. The question is of no importance, however, because both the fibrils and the nerves are formations of living material. To-day it appears it was no mistake of Tomes to maintain that the dentinal fibrils are nerves, for even to-day we know no boundary line or sharp distinction between the fibers of living materials, termed dentinal fibrils, and those termed nerves. There is a continuity of living substance from the periphery of the enamel of a tooth through the dentine with the nerves of the pulp, and, of course, with the brain and the sensual organs.

The practical value of the facts laid down before you is very great indeed. I believe every one will understand that it makes a great deal of difference in the practice of your profession, whether one takes it for granted that a tooth is merely a piece of chalk, an accumulation of lime salts, or whether one regards it as a live tissue. Even the enamel, which was formerly considered as being something like a very refined calcareous or crystalline material, we have proved to be a live tissue. It seems to me every dentist must recognize the importance of this discovery. In former years, to remove at random a certain amount of the enamel, and thus trim it off to increase the space between the teeth and thereby facilitate access to a carious cavity, was considered a trifling performance, and perfectly legitimate. To-day the cutting of the enamel must be restricted to a great extent. As soon as we know that the enamel is alive, and the best protective tissue of the teeth, we must become extremely careful in handling that tissue. We can no longer remove the enamel simply to increase the space between the teeth; we should rather remove a superfluous tooth and let nature repair the injury, than remove the enamel. Certainly we will not remove the enamel to gain easy access to a carious cavity unless it is absolutely necessary.

THE NESTOR OF ANATOMISTS—CORYDON L. FORD, M. D., LL.D

Professor Ford, is without question at the head of American anatomists. Recently on the occasion of the presentation of his picture—by the medical students—to the University of Michigan, the students made touching addresses, concluding with “May God continue to bless the grand old man, and prolong his pure and useful life for many years, is our prayer.” His reply in part was as follows:

MR. PRESIDENT, LADIES AND GENTLEMEN: Embarrassing as it is, after the many complimentary remarks of partial friends, I will lay aside modesty and comply with a request that I speak of myself, in the hope that I may encourage some who hear me, to continue in well doing.

It is of course known to most of you that I have been connected with several medical colleges, and I have been asked by what means I secured so many appointments.

When I taught school I sought the places, for that was the custom; but since I received my diploma, places have sought me; and if you will pardon my egotism I will gratify an expressed wish.

On a pleasant morning in May, 1834, my light trunk was soon packed, and I started on a journey of about 200 miles, to be made by stage and canal boat, from eastern to western New York. This was accomplished between the morning of Wednesday, May 7, and the evening of Tuesday, May 13, the Sabbath (in church) and a part of Monday being spent in Rochester. On the morning of May 14 I awoke in the midst of a blinding snow storm, which prevailed most of the day, among strangers, there being only one person I had ever seen.

I was not quite old enough to vote, and felt that my future was, by the blessing of Providence, for my own making.

Several object lessons had been well learned at a farmer's home, among which were industry, economy, and perseverance. I also had what a friend, who signed my diploma, once encouragingly called “the blessing of poverty,” for my money was now less than three dollars, and reliance for the future was to be on myself. The importance of starting and continuing right in the race now beginning could not be overlooked, and I determined that I would not use tobacco, and I would have nothing to do with anything that could dethrone reason or intoxicate. I would never go in places or in company where my honored mother might not accompany me.

While engaged in dissecting, I yielded, temporarily, to] the too common notion that tobacco would relieve the offensiveness of the work-room, but for more than forty years no tobacco has tainted my breath.

On the 19th day of May, I received a certificate, which I still retain, stating that on that day I commenced the study of "medicine and surgery," signed "A. B. Brown, Vice-President of the Niagara Co. Medical Society."

Weeks passed; I studied with some instruction, feeling "blue" about my prospects, which about the middle of August Dr. Hill, residing at Medina, greatly relieved, by appearing in the office in search of a medical student (of whom he had heard) to go and take charge of a small drug store, prepare medicine, and study, for which board and instruction would be my compensation.

I promptly accepted the offer, again among strangers, with my character to be established by my conduct.

Time passed; I studied, worked, attended to my business. Clothes were wearing out. I left Dr. Hill and resorted to my only mode of earning money, which at \$14 a month, for teaching school, did not replenish the pocket rapidly.

Meanwhile my lack of suitable education oppressed me, and I resolved to resume the study of Latin and Greek, which I did at Canandaigua academy, teaching in the winter.

In 1840 an unskilled dentist broke a tooth for me, and I was prompted to visit Dr. Edson Carr, whom I had seen, but had never met. The tooth being satisfactorily attended to, the question of my future was briefly discussed, and in time I became an inmate of his office and family—partly the result, as he said, of having noticed me in the street, in the recitation room and in church; and I would like to suggest to those who honor me to-day, and others, that to be seen habitually in church makes a better impression on strangers than to be seen entering or leaving a saloon, alone or in company with boon companions—and may I add here, for the benefit of any member of the class, who may mentally say, "I am among strangers, it is of little consequence what I do, or where I go, nobody knows me," there is more than one "unseen eye" that watches the ingoing and outcoming of every young man, who is, perhaps, all unconsciously securing or losing a friend for a time of need.

The time came to attend lectures at a medical college. I had not the requisite means; my friend, with encouraging frankness, said he would provide the means, and I went to the college in Geneva, with a letter from Dr. Carr.

Here I found assembled the usual variety of students. Some whose early advantages for social position, culture and education might excite the envy of many less favored. I recall one, who, perhaps, would have been selected as giving most promise of a brilliant future.

The session passed, without any remarkably conspicuous occurrence, and I returned to Canandaigua to resume my study and work, part of which was assisting Dr. Carr in dentistry, for at that early day it was not unusual to combine the practice of medicine and dentistry.

I returned to the second college year, and with the usual greeting and renewal of friendly relations; one, formerly conspicuous, was absent. Inquiry elicited the fact of his reported death by *delirium tremens*.

One day in December, Prof. Frank H. Hamilton asked me what were my plans for the future after graduating. I replied I hardly had any, I must first earn my diploma. He said they would probably appoint another demonstrator at the close of the year. I told him that if chosen to that position my arrangement would be with reference to that duty.

On the 25th day of January, 1842, I received my diploma, and that evening was appointed demonstrator of anatomy, and, with re-appointments, I discharged the duties there for seven years, resigning in 1849 with such "timely" token of class respect, that I have ever since been able to "watch" the arrival of my lecture hour.

But I am making too long a story. The medical college in Buffalo was organized in 1846, when I went to Buffalo to recommend as demonstrator, Dr. Moses Gunn, a graduate of the previous January at Geneva. I called on Dr. Hamilton, who informed me the place was filled. I asked by whom; he said, "You will learn on your return home," and I served in that college for six sessions.

While in Geneva, in 1848, I received a letter from a stranger asking if I would allow my name to be used as a candidate for the professorship of anatomy in a medical college at Castleton, Vermont.

I was appointed, and gave my first lecture as professor of anatomy at Castleton, February 22, 1849. I had occasionally lectured for Prof. Webster at Geneva and at Buffalo.

Time passed, and in June, 1854, while at the operating chair in Dr. Carr's office, I received a telegram from Prof. Gunn announcing my appointment in the University of Michigan, realizing a hope expressed when we built air castles in Geneva, that we might at some time be professors of anatomy and surgery, in the same college.

On the second day of October, 1854, I gave my first lecture in the University, and thirty-three consecutive years has found me at my post, and in all these years no failure of health has caused more than a brief interruption to my daily labor.

A while ago I made a list of professors, not now living, with whom I have been associated in different colleges, and on looking over the list I see many names of men whom the profession and the public

have delighted to honor, and among them I grieve to say are those who yielded to the debasing influence of that frequent destroyer of human happiness and hope. One especially, whose brilliant talents and high promise were my admiration, always causes a deep sadness, and whose end but illustrates that of unnumbered thousands.

I heard him give a stirring temperance address. His friends rejoiced in the hope of rescue. I saw him often, and when I was feeling the depressing influence of my work (for we had not then the antiseptic appliances of the present day), I was advised to imitate the course of multitudes, who think to bolster up by drink against the influence of the dissecting room. I have ever been grateful that I had the courage to reply: "It is better to die a sober man than to live a drunkard." That was about forty years ago. That man died among strangers, and I fear occupies an unknown grave—buried by the charity of those who had known him when a man. Weeks after his death his neglected and deserted wife made inquiries of his former associates, to obtain traces of the father of her children. What became of them I never knew. Gentlemen, there is only one safe place on which to stand.

TWISTING THE FRONT TEETH TO REGULATE THEM.

Mr. Smale, of England, relates the case of a boy aged eight, who had the right upper central incision twisted so that the mesial surface presented toward the lip. The tooth was grasped firmly by a pair of straight-bladed forceps and twisted into a good position, care being used to press the tooth firmly into the socket during the operation. It was tied to the surrounding teeth with silk twist to prevent its returning to the old position. A week afterward it was quite firm, the tooth could be tapped and the boy could distinguish between hot and cold applications. There was no discoloration, and the gum was healthy. Torsion, says Mr. Smale, may be used freely before the patient arrives at the age of twelve years, and should always be done at one operation. It is only applicable to incisors.—*Independent Practitioner*.

We have practiced this mode with signal success. Sometime since we were in a city dental office where a young lady was going through the usual torture of the constant pressure of a dental appliance to turn a lateral incisor, which presented the mesial surface to the lip.

"Really, it seems to be very stubborn," said the dentist; "I have been at this now for several days, and I see but little improvement."

Take your forceps, and turn it, was suggested. He did, and by ligaturing it in place for a few days, it has remained there permanently.—[ED. ITEMS.]

THE VARIATION IN THE EFFECT OF COCAINE.

At present it is difficult to say with certainty whether the striking differences which are observed with identical doses are due to variations in the quality and potency of the drug, or to individual susceptibility. The present comparatively low price of the drug may possibly act unfavorably on its quality, especially as the competition between rival houses is very severe. This point can only be elucidated by instituting careful inquiries into the source whence the drug was obtained in every case where unexpected symptoms are observed. Next to the ophthalmic surgeons, the dentists showed the greatest enthusiasm in endeavoring to avail themselves of the valuable properties of this modern addition to therapeutical agents. The most brilliant results were reported as obtained on every hand for awhile, but lately not only has the efficacy of the drug for dental purposes been questioned, but the inconveniences and even danger which is apt to accompany or follow its use have been made public. The inevitable reaction against the extravagant pretensions advanced on behalf of this drug has already set in. The sooner its use is restricted to the cases in which it may reasonably be employed, and in doses and with precautions calculated to diminish its drawbacks, the better it will be for medical men and their patients. It should never be forgotten that cocaine is a potent alkaloid not to be trifled with. We have, so far, not had to record many cases of cocaine addiction, except on the part of medical men in the case of their patients; and it is to be hoped that any prospect of this will now be averted.—*British Jour. Den. Science.*

FIRST THE MAN, THEN HIS CALLING.

In these modern days of democratic America, the man is not known by his calling. The calling does not make the man. Once, to call a man *Doctor*, was to fix the eyes of many passers-by on him as a man to be highly esteemed for his work's sake. To call a man *Honorable*, was at once to place him high in the rank of society. To call a man *Professor* was, in the popular mind, a perpetual endowment of learning. But now, when any one who deals in patent medicines, or sells corn plasters, calls himself, and is called by others, *Doctor*—and when a member of the common council of a small village has the title of *Honorable*, as well as the Senator of the United States—and when the barber and the writing master, as well as the learned collegiate, are called *Professor*, the popular sentiment is that the man makes the calling—that the calling is just what the man makes it to be. The various pursuits in life are esteemed and appreciated for just what those who are engaged in them make them. *First the man, then his calling.*—*L. C. Ingersoll.*

NEW GRADUATES IN DENTISTRY.

The following are the number graduating at the last session of the respective Dental Colleges, and Dental Departments of the Universities named :

- Pennsylvania College of Dental Surgery, 31st session—79.
- Philadelphia Dental College, 24th session—79.
- University of Maryland, 5th session—51.
- New York College of Dentistry, 21st session—51.
- Baltimore College of Dental Surgery, 47th session—48.
- Chicago College of Dental Surgery, 5th session—37.
- Ohio College of Dental Surgery, 41st session—32.
- University of Michigan, 28.
- University of Iowa, 5th session—24.
- University of Tennessee, 9th session—22.
- Vanderbilt University, 8th session—18.
- Harvard University, ——— —14.
- Indiana Dental College, 8th session—14.
- Central University of Kentucky, 1st session—10.
- Boston Dental College, 20th session—8.
- Kansas City Dental College—9.
- Missouri Dental College, 21st session—7.
- Howard University—6.
- Minnesota Hospital College, 5th session—4.
- Meharry Medical College (colored) 1st session—3.

CEMENTS.

THOMAS FLETCHER, ENGLAND.

EDITOR ITEMS :

Allow me to correct some of the statements made by Dr. Sanborn on this subject. He has clothed his statements with language rather than facts, and on this subject facts are the most important. When he refers to the "stable oxides, potash and soda," it would be interesting to know where they exist. Both rapidly become carbonates, and to retain them unchanged they require to be kept in hermetically sealed cases. The fact that "calcium combines with oxygen and carbonic acid to form limestone," is hardly one from which we learn that "our cement must become a stable compound by the base becoming thoroughly oxydized, so as to be proof against the further action of oxygen." What this has to do with cements is hard to see. There are many cements in common use which neither contain nor combine with oxygen, as Dr. Sanborn will find when he knows a little more about them. How this, also, becomes a reason why we select oxide of zinc,

is another unexplained puzzle; and his statements that volatilized oxide of zinc is used, and that oxide of zinc is unchanged in air and is insoluble in the fluids of the mouth, are facts (?) which exist in his imagination only. Dr. Sanborn says: "With what shall we combine it to make it suitable to our wants? Let us ask nature." His method of asking nature is to refer to *calcined* plaster of Paris! On this he goes on to say that "sulphate of lime has a much stronger cementing power than carbonate, because this acid is the strongest of all acids." How about glue, shoemaker's wax, shellac and a few others which contain no acid? And what is the "magnetic polarity" of shoemaker's wax?

We learn, on the writer's authority, that plaster of Paris, when exposed to too great a heat, will not set again, "because of the decomposition of the sulphuric acid in the plaster." This may be so in America, but in England we find that plaster is purposely overheated, to form a slow-setting, hydraulic cement, and is much harder than ordinary plasters. We also find that the sulphuric acid is not "decomposed," and that the only action which takes place is the complete removal of combined water.

It is news, indeed, to learn that plaster of Paris is like *all* other cements, "an acid united with an oxidized metal base." If this is correct, we must re-classify the so-called cements which contain India-rubber, shellac, copal, glue, albumen, copper with mercury, palladium with mercury, lead oxide with glycerine, lead oxide with oxydized oils, and many others which the world has unfortunately, up to this time, classified and used as cements. We must correct the dictionary-makers, and let it be known in future that a cement is a compound which will not make things stick together. In the praise of sulphates of an oxydized base, the writer has forgotten that all sulphates are more or less soluble in water.

If the argument that we use phosphate of zinc "because so in harmony with the phosphates of the teeth," we ought, for the same reason, only more so, to use phosphate of lime as a cement, and perhaps we should, if experience had not taught us better than to argue on such grounds. That a very basic phosphate of zinc has a "deliquescent tendency," is news indeed.

It is hard to have to wade through such statements, in which facts are so conspicuous by their absence, and it is to be hoped, before Dr. Sanborn again gives his views in public, that he will read up some chemistry and experiment a little.

There are to date 27 legalized dental schools in the United States, with about 3500 graduates. From sixteen of these schools 2000 matriculated last year, and 700 graduated this spring.

ANALYSIS OF STATE DENTAL LAWS.

The Cosmos gives the following:

STATE.	YR.	AUTHORITY RECOGNIZED.	REQUIREMENT.	REGISTRATION.
Alabama...	{ 1841 1881 1887	Examining Board.	License from Board.	Probate Court.
Arkansas....	1887	" "	License from Board.	Books of the Board.
California....	1885	" "	Grad'n or License.	County Clerk.
Connecticut..	1887	No Exam. Board.	Grad'n or six years' practice.
Dakota.....	1885	Examining Board.	Grad'n or License.	Register of Deeds.
Delaware....	1885	" "	" " "	Books of the Board.
Florida.....	1887	" "	License from Board.	Clerk Circuit Court.
Georgia.....	1872	" "	Grad'n or License.	Books of the Board.
Illinois.....	1881	" "	" " "	County Clerk.
Indiana....	{ 1879 1888	" "	" " "	County Recorder.
Iowa.....	1882	" "	" " "	County Clerk.
Kansas.....	1885	" "	Grad'n required.	Books of the Board.
Kentucky..	{ 1867 1868	" "	Grad'n or License.	Books of the Ass'n.
Louisiana....	1880	" "	Grad'n or License.	Books of the Board.
Maryland..	{ 1884 1886	" "	" " "	" " " "
Massachusetts	1887	Board of Regist'n.	License from Board.	" " " "
Michigan....	1883	Examining Board.	Grad'n or License.	" " " "
Minnesota....	1885	" "	" " "	Clerk County Court.
Missouri....	1883	No Exam. Board.	Grad'n required.	" " "
Mississippi..	1882	Examining Board.	Grad'n or License.	" " "
Nebraska....	1887	No Exam. Board.	Grad'n required.	" " "
N. Hampshire	1877	Board of Censors.	Grad'n or License.	" " "
New Jersey	{ 1873 1880 1884	Examining Board.	Grad'n required.	" " "
New York..	{ 1879 1881	No Exam. Board.	Grad'n or License.	" " "
N. Carolina..	1879	Examining Board.	Grad'n or License.	Books of the Board.
Ohio.....	{ 1868 1873	No Exam. Board.	Grad'n or License.
Oregon.....	1887	Examining Board.	Grad'n or License.	County Clerk.
Pennsylv...	{ 1876 1883	" "	" " "	County Recorder.
S. Carolina...	1875	" "	" " "	Books of the Board.
Vermont.....	1882	" "	" " "	Secretary of State.
Virginia.....	1886	" "	" " "	Books of the Board.
W. Virginia..	1881	" "	" " "	" " " "
Wisconsin....	1885	" "	" " "	" " " "

DR. WM. H. ATKINSON IN THE PAST.

DR. GEO. A. MILLS, NEW YORK.

Doubtless to Dr. W. H. Atkinson, of New York, is due, more than to any other, the introduction of the method of a preliminary education of dentistry at the chair. Dr. Atkinson came to New York in June, 1861. We preceded him but a month. He came as the acting agent of the New York house of the then Messrs. Jones & White, located at the corner of Broadway and Bond street. The history of his coming would be interesting to those, at least, who believe with the immortal Shakespeare that, "There is a divinity that shapes our ends. The doctor had already acquired no little fame, and he was not long to be kept down among the materialism of mercantile life. A few kindred spirits of the nature of Dr. Wm. H. Allen, now deceased, found by contact that the doctor was much needed among the practitioners, and he was soon seduced into evenings of conversation at the offices of different dentists, and the spontaneous enthusiasm rapidly kindled the desire for practical demonstration, when the doctor was spirited into office quarters at 18 West Eleventh street, with Dr. W. H. Allen. This was the origin of the wide open office practice, "come and go as you please." The doctor being then an ardent advocate of the mallet, this alone was a novel object of interest; then his use of the "crystal foil" and his treatment of alveolar abscess, drew many earnest attendants to his clinics. While the doctor's office was free to all who came, he inaugurated a regular weekly clinic on Monday afternoons. While referring to these clinics, we are reminded of the formulas of medicines at this time introduced by Dr. Atkinson, viz.: the saturated solution of iodine, crystals and creosote, alias, "big nigger;" also, the tannin and glycerin ointment, (rubbing into the glycerin all the tannin it will take into combination.) Having seen these in a Chicago letter in the March number of *The Archives*, it is well to note this fact: this was in 1862, and these remedies had been long in use by the doctor, and precisely for the purposes named, and have been a familiar remedy with many since for various purposes, including those specially named in the article referred to. This proceeding, to any one who was familiar with the *closed door practice*, was a marked innovation on the élite or selfish custom of those times. While many who possessed the opportunities, and acknowledged the profit of these clinics, Madame Grundy was busy with her grunting predictions of a sudden reaction of such a barbaric practice—that might do for the wild West, but New York city would frown on such a crude familiarity with patients. Dr. Atkinson here introduced the use of a *constant* assistant at the chair, often employing some one of his family, and frequently improvising some one of the visiting dentists, and it often happened that anywhere from

one to four or five were engaged in the operation, which created an interest of unusual quality, while the patient was far from being a less hearty participant.—*Western Journal*.

BRAINS AND WORK.

Dentists are no exception to the general rule. The man who puts the most brains into his work can command the highest appreciation expressed in fees. There are men of high education and culture in the dental profession, who employ their education and engage their minds and best thought outside of their profession. Elihu Burritt, the learned blacksmith, employed his talent outside of his shop, and became master of fifty-two languages. But his linguistic learning added nothing to his work at the anvil. Hence his work-shop was not more appreciated because of his learning. The callings of some men of excellent minds and culture are such as to afford no scope for their study. They cannot put into their work the study and thought of which their minds are capable. They are compelled to go outside of their callings to find suitable employment for their minds. But this is not the case with denistry and the dental profession.

When, in times past, denistry was made simply a mechanical and manipulative art, there was little in it to invite the attention of men of good mental capacity who loved study. But since denistry has grown into a deep and profound science, it affords scope for the best minds, and he who studies denistry most is best capable of getting out of it what is most valuable and appreciable for mankind.

What is most valuable in denistry is obtained only by study and research, and the value increases in proportion to the amount of brain-work employed in developing it. A shallow and superficial view of denistry develops the shallow and superficial dentist, whose worth is appreciated for all it is worth.

It is the comprehensive view of denistry that inspires a man to enthusiasm in the pursuit of his profession, and to become the progressive man, whom the intelligent and progressive people of the town like to meet and employ. It is not enough, then, that a man should be educated and learned, but that he should be known as employing that education and learning enthusiastically in the pursuit of his profession, and not outside of it.—*L. C. Ingersoll*.

Gold in Amalgam is now generally considered desirable, and is said to not only hasten the setting but imparts "fine grained plasticity," and helps to prevent discoloring.—*Geo. Elliott, England*.

BABBITT METAL.

The following letter from a prominent dentist to Dr. Haskell is a strong endorsement:

DEAR DOCTOR:—I suppose it is always gratifying to know that our efforts are appreciated, and I for one wish to tell you how much I appreciate your suggestions in regard to Prosthetic Dentistry; especially am I pleased with Babbitt Metal. I received my instruction in Prosthetic Dentistry from a professor of note, and I have followed his teachings carefully for years (usually with good results); but when I think of the great amount of trouble and annoyance I have been put to in the use of *zinc*, I am disgusted. Among the many "old foggy" absurdities now being practiced in our profession, I do not believe there is one more apparently so, than the use of zinc as a *die*. In using Babbitt Metal and oiled sand, I find the trouble in making a metal plate lessened nearly half, and it seems to me it is high time zinc should be discarded. I think I was nearly the first to try, by your advice, the use of Babbitt Metal, and I know of at least three others here who are now using it by my advice, and with the *best* results. Also I can see that its use has the good effect of increasing the number of gold plates. But we have had great trouble in procuring a good article of Babbitt Metal. Now we send to you for it, but there is one peculiarity of the metal. After heating it two or three times, a portion of it seems to get *mushy or sluggish*. Will you kindly inform me as to the cause and the remedy?

Yours truly, L. G. H.

The cause of the difficulty referred to, is undoubtedly the *manner* in which the metals are put together. The remedy is the use of a little more *tin*.—*Dr. Haskell.*

Effect of Extracting.—We need not hope to improve deformities at the front of the mouth by the extraction of the first molars, because there is a marked forward inclination of the front teeth, including the bicuspid. The overcrowded front teeth will usually retain their position, owing to the increased bracing caused by the shortened bite. But if such overcrowding is at all relieved, it can only be by a forward movement which increases the forward projection of the arches, and the production of a deformity worse than the one sought to be corrected.

If one takes the trouble to acquaint himself with a given case, he may safely predict what form the arch will take after certain extractions shall be practiced.

One hardly needs to consider the results of extraction of any other than the *first molars*, since these teeth have been made to bear the penalty of most dental sins, as well as sins of dentists.

The wisdom-teeth, if of bad structure and in an overcrowded jaw, are often better lost, but the bicuspid *never*, if dental art can save

them through life, excepting possibly for the correction of certain deformities.

If the second molar ever need be lost, it should always be before the eruption of the third molar, that the latter may come into place with as little tipping as possible.

While admitting the value of extraction as a means of correction of certain irregularities of the teeth, I am forced to believe that far more irregularities have been *caused* by extractions than could ever have been *corrected by extraction*.—*I. B. Davenport, Paris.*

Advertising.—Dentists who are so anxious to make the people believe we are a learned class of esthetics, most prevail among those who really know so little of dentistry as to be poor judges of its needs; and dentists who are so anxious to convince a sceptical public of our many excellencies in this manner, are just those who are so horrified at advertising. The essential spirit of advertising, and what makes it so objectionable, is that it is employed to proclaim some one's superiority. Now, I cannot see that advertising is any better when done collectively than when done individually. But dentistry does not need advertising, nor bolstering by trades-union societies. So far from our having arrived at that degree of excellence which justifies our standing on the house-tops and proclaiming our greatness, we have immense strides to make before we have a right to any such proceedings; and when these strides have been made, there will be no need for proclaiming our superiority, for it will be apparent to all the world. The gentlemen who advocate this instruction of the public, unconsciously reveal their want of faith in themselves and their own position. Any attempt to elevate ourselves in the esteem of the public other than by undeviating modesty and honest work will only result in our degradation.—*Dr. Parson Shaw, of England.*

Platina and Silver Plates.—An English correspondent to the *Dental Review* says: There is a material in use here for making metal plates that I think is a good thing. It is called Dental Alloy. It is composed of platina and silver. I am told it is prepared by melting and rolling, and when near the required thickness it is placed in nitric acid to remove the silver from the surface: then rolled to the required thickness. This leaves practically a platinized surface. The plate works about as easy as sixteen carat gold, and can be soldered with sixteen carat solder very well, while possessing an element of cheapness which gold does not. It furnishes a plate that will not change color in the mouth. Silver plates are not used here at all, owing to their being displaced by this alloy.

DIAMONDS IN TEETH.

73 LAFAYETTE AVE., BROOKLYN, N. Y.

EDITOR ITEMS:—Enclosed herewith please find a clipping from *The New York Tribune* of yesterday. Will you please tell us what you think of it in next months' ITEMS? I have never heard of such a thing before, and strongly suspect that the dentist was playing a joke on the writer, perhaps as a check on reportorial curiosity.

Yours resp'y, D. W. BARKER, M. D. S.

I was in a dentist's office up-town the other day where a woman was seated in the chair, when I noticed a flashing light from the point of one of her front teeth, which struck me as being the reflected rays from a diamond. I said as much to the dentist when he came to speak with me, and he astonished me by replying: "That is just what it is. It is frequently the case that we have ladies come here whose front teeth are so badly injured that filling them with gold produces a disagreeable appearance. By putting in a small diamond with a gold setting the disfigurement is less noticeable. I had a remarkable case not long since. A wealthy California gentleman brought to me his daughter to have her teeth examined. One of her upper front teeth had the peculiar formation of a pearl. The pearl was not complete but was sufficiently defined and distinct so that there could be no mistake about it. The companion tooth was badly decayed and her father desired to have a diamond set in it. The young lady is in New York at the present time, but is soon going abroad to finish her education."

What would the reporters do if they could not say something sensational?—ED. ITEMS.

The Bug Question.—Dr. Frank Abbott says: It is probable that that our coming into life in the first place, as well as our existence after coming into life, is more or less due to the influence of these very organisms that we have been talking about so much as being the cause of disease and destruction; and yet that theory may still be true. But the fact that we cannot digest our food and cannot raise a plant without the assistance of these organisms,—the fact that both vegetable and animal life are dependent on the action of these little organisms,—is almost startling to us. The opinion has prevailed that we are overrun with millions of different kinds of minute organisms to such an extent that we are liable to be carried off at any moment. Our teeth are being eaten up, so that every time we look in the glass we expect to see a new cavity. It has come to that point that these microscopic organisms are really a bugbear with us. But things are taking a different turn on the other side of the water, and also in New York, where in a certain laboratory similar experiments are being made in a very quiet way, such as have been made by Pasteur in Paris and by Koch in Berlin, with the view of determining this question, if possible, and utilizing any new facts that may come up.

A NEW REGULATOR.

DR. L. P. HASKELL.

At the recent meeting of the Minnesota State Dental Society, Dr. E. H. Angle, of Minneapolis, presented a paper on, and the appliances describing, a new method for correcting irregularities of the teeth.

These appliances are exceedingly simple and effective. They are not altogether new; one of them, for instance, the jack-screw, is so different from its prototype it would scarcely be recognized as a jack-screw. There are several lengths, one of which is but *one-quarter inch* long, and yet can be used effectively.

The appliances are few, small, and do away with rubber plates, bands and ligatures; there is also an appliance for holding the jaws apart, causing no irritation of the gums.

Another important feature is that a part of the appliance is always used for retaining the teeth in place in a simple manner.

They can be made by anyone, but will be placed on the market at a low price.

I do not furnish a full description, as Dr. Angle will be present at the Congress with a paper and the appliances on models, in the various methods of their application.

Testing the Vitality of a Tooth's Pulp.—Many obscure cases present in which this is difficult to ascertain. A simple method is to apply heat: The preliminary isolation and drying of the suspected tooth and those immediately adjoining is the same as by the old method, though the rubber dam is not so essential. After isolation, the tooth is tested by applying to it a piece of gutta-percha which has been heated in hot water. It takes hold and transmits its heat at once and there is an almost immediate response if the pulp is living. If there is no response, it may be applied to one of the adjoining teeth, with a known living pulp, and the comparison noted. The old method of testing with a heated steel instrument is terrifying to a nervous patient and the response if the pulp is alive is often tardy or absent. Apprehensive patients under the influence of fears or imaginings will frequently, when a heated instrument is applied, mislead the operator by declaring that a tooth is sensitive when you know it to be pulplless.—*Dental Review*.

Dentistry as an Independent Profession.—If to-day all the medical colleges and the entire medical profession were to be blotted off the face of the earth, the practice of dentistry would not be injured in the least, nor would humanity suffering from diseases of the teeth be one whit the less cared for.—*Dr. Kingsley*.

VACUUM CAVITIES IN DENTAL PLATES.

DR. A. A. HAZELTINE, NEW BEDFORD, MASS.

Few people, I think, understand the principle of a vacuum; how it is produced and how it acts. When applied to artificial denture they seem to have the idea that of itself, it produces a constant "suction" without any action on the part of the plate. I have even found dentists who did not seem to understand the philosophical principle of atmospheric pressure. Patients generally (and many dentists) seem to think an air-chamber or "suction," will make any plate, in all mouths, hold in place more firmly, regardless of shape or peculiarities of individual cases. Admitting their advantage in some mouths, in others a cavity would be the worst possible device. I regard their benefit, at best, but temporary, since the effect is soon lost by the the mucous membrane filling it; and, in the rather soft mouth, that at first seems most benefited by its use, the effect is soonest lost. No doubt it often serves to give the wearer greater confidence in the security of his teeth, on beginning to wear them, particularly as regards talking, etc., while he remains in the office. And till the attempt to chew with them is made, will usually be better pleased,—will think you have given a "splendid fit." Yet an air-chamber will not hold a plate against the pressure and leverage of biting and chewing, and that, I regard, as its chief objection; since, on the slightest displacement, the air contained in the cavity must be sucked out. On the contrary, a nicely fitting plate without one, is practically self-exhausting, the air being forced out by its simply going into place. It may be said by those advocating the general use of a suction that, if it does become filled and the effect thus lost, it *then* acts as a plate without, yet with the benefit of the *temporary* advantage. But the plates that at first adhere so firmly, are the ones patients soonest complain of, as having grown loose. They do not know the change is caused by the "suction" becoming filled and so does not "draw," as people seldom, at first, have this explained to them. On the other hand, the longer a plate without one is worn, the more satisfactory it usually becomes. Another thing, cavities, as often made, cause irritation and congestion. Some dentists are indifferent to careful manipulation and nice adjustment, and rely for "fit" on a large and deep chamber, and often succeed in getting a plate with great adhesion, *at first*. I do not discard them entirely, but use them mostly in partial atmospheric plates, and for whole upper ones for patients who have not before worn teeth,—particularly for those who cannot be made to understand the principle of atmospheric pressure, and who will not be satisfied unless a plate adheres tightly at the start.

GAS IN COMBINATION.

C. W. MUNSON, D. D. S., TOLEDO, OHIO.

We frequently see the use of N.O gas in combination with a liquid anesthetic, so unqualifiedly condemned by some of the lights of the dental profession, that I am constrained to ask them if they have ever given such a combination a careful, honest, and unprejudiced trial? To condemn untried or unheard is unreasonable, and the anathema of condemnation on any other subject pertaining to the practice of dentistry, would have little force, if it came from those who had never investigated or tested the practice they condemn. Much of this criticism of gas in combination is based on prejudice against innovations, and more especially so in this case, because it was first advertised as "vitalized air." If those who condemn its use will state concisely how long they have tested this in actual practice, and then give their *reasons* for claiming it unsafe or undesirable, we may have more respect for their opinions. Those who have used N.O gas constantly in practice for years, and then have used the combination long enough to test its merits, are convinced beyond question, that the action of the latter is much more rapid and effective than the former, with an almost total absence of the excitability so frequently present with gas, and no different after effects that can be detected. *Why* it is so condemned, by some practitioners, is something I would like to have explained, with their reasons.

Elevating our Profession—Many men enter the professions to make money, leaving out the idea of honor and of honesty.

Talk as we will about the elevation of the dental profession, it will never take place till its members adopt a high ethical code. The capital of a dentist is brain, thought, not money. As soon as one oversteps the bounds of truthfulness people lose confidence in him. We want no quack advertising in the dental profession. No dentist has a business to warrant or guarantee. Don't talk about your competitor. You have no business to have one save in excellence.—*L. C. Ingersoll.*

"THE MICROBE WITH HAIR COMBED."

Some may be disposed to discredit the description of the animal which "A Student" in a former ITEMS, says the learned lecturer described. But here is Tome's description of a parasite found in fishes: "The myxine, which is found in the interior of larger fish, is furnished with a median curved conical tooth, of horny consistency, which is believed to act as a holdfast, which the serrated edges of the horny plates on the tongue were brought into play in boring a way into the interior of its host."

For Our Patients.

English as She is Wrote.—by Rote.

The rhyme is *only* in the spelling.

Our hired man named Job
Has got a pleasant job—
The meadow grass to mow
And stow it in the mow.

In courage he does lead,
He does not fear cold lead ;
But when his clothing tears
It melts his heart to tears.

A book that he had read
He handed me to read ;
He spends much time in reading
When at his home in Reading.

Chestnut Hill.

T. G. T.

PRESERVE THE BABY TEETH.

DR. J. E. CRAVENS, INDIANAPOLIS, IND.

The adult teeth are from one-third to one-half larger than the deciduous, and fifty per cent more numerous, requiring about double the capacity of alveolar arch, which the child's jaw must grow to accommodate.

Additional development of the alveolar arch is usually accomplished in six years, beginning at about the sixth year. Yet how often we find the lower adult centrals, at six years, coming through the gum behind the deciduous incisors and obstructing the movements of the tongue. And a little later, six months perhaps, the inferior laterals struggle through, so far back and so hedged and handicapped for space and position as to *appear* to be hopelessly shut out of the arch forever.

Right here is where mistakes are often made by dentists, by prematurely extracting deciduous incisors. So long as deciduous teeth remain and in healthy condition, the arch may be expected to expand, at least till the requisite space for the accommodation of the adult teeth has been attained. The deciduous crowns and roots seem to serve as levers and wedges by which the jaw is induced to expand at the desired points. The tongue possibly is an active factor in rendering the leverage effective.

Another reason for retaining the deciduous teeth as long as space is needed, is that the resorption of their roots is attended by a mild form of local inflammation and increased vascularity, resulting in hypernutrition of the jaw, and consequent enlargement of the alveolar

arch for the accommodation of adult teeth. When it is possible to do so, all cavities in deciduous teeth should be filled.

Pulpless deciduous teeth should be retained, if possible, under conditions that may not prevent resorption of their roots, that they may perform their secondary function of assisting in inducing enlargement of the alveolar arch.

The deciduous molars should be retained for good mechanical reasons. They prevent a forward tipping of the sixth year molars, particularly of the lower, thus preserving proper space for their immediate successors, the bicusps. Also, they are necessary to preserve articular surfaces for the effective mastication of food. Good masticating ability is quite as essential for the child as for the adult.

EDUCATE YOUR PATIENTS.

DR. L. C. INGERSOLL, KEOKUK, IOWA.

The results of dental loss must be made the theme of daily lectures at the dental chair. Every important operation should be of a clinical character, and made the basis of valuable instruction.

It is not expected that the lower classes will appreciate dentistry for more than the relief it gives to present suffering. Hence it is not uncommon to find persons who will not have a tooth treated and saved if it will cost more than to have it extracted. The paying patronage of dentists comes from the higher and more intelligent classes; not because of their wealth or their better learning, but their general intelligence and mental culture enables them to understand better, when explained to them, the true value of anything, and their better financial condition enables them to obtain what they most value. On this class it pays to bestow thought and time in giving intelligent instruction.

The point to be made is the value of dental operations in promoting personal comfort, health, and longevity, the preservation of the form of the features, personal identity, and the pleasure of social intercourse without embarrassment, as well as presenting old age freed from its most unwelcome deformity.

The rule should be "line on line, precept on precept, here a little and there a little" of intelligent instruction touching the deeper and more important results of dental operations than those immediately experienced—results pertaining to the long future of their own lives and the well-being of their posterity, whose lives may be made miserable or pleasurable by inheritance.

A dentist's patrons must be made to feel that he is truly honest in his dental operations—that he is not working simply to get a living—

that he does not talk dentistry for the mere dollar's sake, but that in his dental skill and knowledge he holds a high trust for the benefit of his fellows. All trickery, deceit, or covering up of conditions or results, should be as foreign to him as to sun-light. All he says and does should have the openness of christian day-light. This perfect frankness and honesty creates in the mind of a patron confidence and trust, which is the only foundation on which can be built a successful practice.—*Ind. Practitioner.*

Extracting to Regulate.—The dentist who would try to prevent future disease by extracting a tooth plays Providence, and we all know this is a dangerous play. Suppose a physician should say to the parents of a baby, "The baby has a little toe; that toe in years to come may have a corn upon it; or when this baby is an old man, that toe may become the seat of senile gangrene; therefore let us cut it off!" What would you think of the surgeon? This is playing Providence.

Some years ago I was present at a discussion where this question of separation came up, and I am surprised that your profession has not made more headway in eight years than my professional brothers did in surgery, medicine, and gynecology. I feel quite at home here in listening to the discussions of the most elementary points, or A B C of dentistry, because it reminds me of our imbecility in all branches of medicine. You are just as frail and weak as physicians are in general. *Carl Heintzman.*

He saw he was from Chicago.—A gentleman from the boundless West was calling at the "parlors" for consultation, and as the interview was about terminating his eye chanced to fall on the doctor's diploma, the leading line of which, in very black text, ran thus: "Academia Chirurgia Dentium," etc.

As the *Chirurgia* struck him his face suddenly lighted up, and extending his hand energetically, he exclaimed: "Why doctor, I didn't know you were from Chicago. Shake!"—*Boston Record.*

Young man: "Is it true, doctor, that smoking cigarettes tends to soften the brain?" Physician: "There is a belief to that effect, but with all our boasted modern scientific appliances it cannot be verified." Young man: "Why not, doctor?" Physician: "Because nobody with brains ever smokes them."

A fashionable London doctor has startled folks by asserting that tight lacing is a public benefit. He takes the unassailable ground that it causes the fools among women to die young.—*Clipping.*

Editorial.

LIFE INSURANCE.

We are again reminded of the importance of life insurance. The death of another estimable dentist, in the prime of his manhood, who leaves a wife and five children without means of support, is sad indeed. Suppose it *had* been difficult for this father to have laid by one hundred dollars a year for life insurance, is it not much more difficult for that mother now to provide for herself and these helpless children? That hundred dollars a year would have secured for them in their present exigency five thousand dollars! How timely its coming would have been. Death under any circumstances is sad, but death that brings to the survivors abject poverty is very much more sad, a sadness that every day's necessities makes more sad.

"But," says some close calculating father, "there are instances like this where life insurance would be very nice, but how about those who have to carry their policy for many years?" We have carried five thousand dollars for thirty years, and have been benefitted by it all the time. It has made us more thoughtful, more economical, and more industrious, and it has been a continual comfort to us to know that our family was provided for if we should be taken away by death. We believe verily we have more money than we should have had if we had not carried a life insurance. Not only this, but it is a good financial investment. You have to live to a good old age to pay the life insurance company more than your family receives at your death.

"But," says another, "can I not put aside an amount every year, and thus as surely and as wisely provide for the exigency of death?" Perhaps so, but *do* you? And if you should attempt it, are you more sure to do so in the future than you have been in the past? A life insurance policy increases in value every year, and its laps is an increased loss, so that you are continually stimulated to keep it up, though you have to economize in many ways. But savings put in the drawer, or even in bank, are easily taken again. You may put aside two or three hundred dollars, perhaps five hundred dollars, but is even this amount likely to stay put aside till your death? When exigencies arise what a temptation it is to "borrow" a little and fail to return it; to take for "temporary use" a little more, to be returned during "the very next time of prosperity," hardly to see when the convenient time for its return comes, till finally memory is short or disposition is changed, and the nest-egg is gone instead of being added to, as we fully intended it should be.

It is well to put some money away for a rainy day, and if we are provident we will, though our income is small. There will be some deposit in a savings bank though the interest is small ; or one should own a few Government bonds, or other well known stock, though the income from them is slight ; but this should not prevent having an interest in a good life insurance policy. A Western friend of mine, who was not favorable to life insurance, invested all he could possibly spare in wild land. He gradually bought quarter sections till he had twenty-one hundred acres of excellent virgin soil. In the midst of financial depression, when scarcely any one could help his neighbor, and he was unable by any means to pay his taxes, and had been unable for three years, he died. It was after only an eight day's sickness, and just as all his land had been sold to strangers for taxes. Fortunately, only ten days previous to his death, and only two days before serious sickness from "a cold," he had been induced to take out a two thousand dollar life insurance, though he had to borrow the money to make his first and only payment. What a difference the payment of that policy to the widow made to that family. The land was redeemed, the little home previously mortgaged was saved, and the three children were taken care of and educated.

THE ARROGANCE OF IGNORANCE, AND THE MODESTY OF WISDOM.

Of what a conglomeration and contradiction of characters is society made ! We have ignorant learned men, foolish wise men, and mischievous good men ; let us be thankful we have also cultured unlettered men, wise half-witted men, and unchristian peace-makers. How often we are surprised to see masters of the most wonderful sciences impracticable, teachers of the most intricate mechanics unskilful, and leaders in our chosen profession poor operators ; all this while we find successful men who are unscientific, skilful men who are poor demonstrators, and fine dental operators who would be laughing-stocks as college professors.

Go into any trade or profession, and you have to stumble over assumed leaders who are pigmies with wise countenances, fools with swelled heads, and obstructionists, mystifiers, and visionaries, though covered all over with the lore of ages. These are all so egotistic, so obstructive, so self-consequential, and so prominent for their numbers and their troublesomeness that we do not see the modest worker whose skill is more in his hands than in his head, the real student who thinks with one eye and applies with the other, and those true men of progress who make every thing subordinate to the practical, the useful and the beautiful.

By this condition of things true scientists are abashed, profound

thinkers cautioned, and astute philosophers humbled. And this is well, for, though we see the arrogance, assumption, and treachery of ignorance, we know the best men are erring, the wisest are short-sighted, and the most skilful are blunderers.

If we are progressing, that of which we boast to-day because it is better than our best of yesterday, we shall be ashamed of to-morrow.

If we would lead the world, or even our immediate associates, our theories must be explained by our practice, our teachings must be demonstrated by our success, and our superiority must be shown by the triumph of proof over assumption, merit over arrogance, and wisdom over self-assertion.

None of us are expected to be proficient in all departments of learning and skill, but an educated man should know something of everything and everything of something. Also, a man is excusable for ignorance in non-essentials and for blunders in trifles; but where wisdom is essential to important enterprises and ignorance is failure, if he acts on assumption while professing accurate knowledge, he is censurable; if he falsely professes skill while he is a novice, where accuracy is life and blundering is death, he is a criminal. And yet where a really qualified man steps with caution, an arrogant ignoramus treads with confidence; in the mazes of philosophy, where the profound investigator doubts and hesitates and questions, the tyro assumes positive knowledge.

So it is in medicine and dentistry. During the investigation of some intricacy, while the most observing and skilful set at the feet of learning as attentive and industrious scholars, mountebanks step on the rostrum as embodiments of wisdom, and at the clinic assume to give instruction with profound confidence. Sometimes at our conventions ignoramuses and tyros and vain voluble volunteers for notoriety assume to be leaders, carrying the unwary into labyrinths of sophistry and dark passages of error, while wise men, because of their modesty, are given back seats.

The crowning feature of the morning meeting of the Iowa Society was the implantations performed by Prof. Eames, of St. Louis, and Dr. Ottofy, of Chicago. Prof. Eames implanted a superior left bicuspid, the former tooth having been extracted about three years since. The professor drilled a cavity for the reception of the new tooth, taken from a patient several days previously. They were successful operations and elicited the greatest admiration. Dr. Ottofy also implanted two bicuspid teeth, using two patients, completing the first in twenty-five minutes, and the second in an hour, showing extremely skilful work.

"PROMPT COLLECTIONS."

"ITEMS OF INTEREST has an editorial in the May number on prompt collections that in the main is good. The only objection to it is this sentence, 'Don't be afraid of letting your patient know before you begin how much their work is to cost as near as may be, and when you expect to be through.' There are two reasons that experience has shown that proposition to be wrong. First, it encourages "shopping," *i. e.*, people running about, from one dentist to another, seeking the one who will underbid, and tattling what they hear. Second, that it greatly hampers the dentist in his work, for, as is frequently the case, unsuspected cavities will be found or some unforeseen complications will rise that necessitates a much greater expenditure of time and material than calculated on, and if a price has been fixed, either the dentist must work at a sacrifice or shirk what is a manifest duty, even though it entails on him a financial loss. It is far better to "make a friend" of the patient, gain his confidence and with that once obtained, whatever the work is that must be done or what the cost incurred, the patient will rarely question the amount of the bill. It sometimes happens though, that, even if the price of any one of a number of fillings should not exceed five or six dollars, yet, a large number of them will make the bill seem exorbitantly large and the patient may be disposed to dispute it, yet when shown the diagram in the registering ledger and the analysis of the bill by items, he then sees it is merely a question of the amount of work done."—*Dental Register*.

These criticisms are worthy of consideration. No doubt a dentist may err in too closely and definitely estimating the expense and duration of the work he proposes to do. Better by far "make a friend of the patient and gain his confidence." Perhaps our proviso that this estimate should be made "as near as may be," was not sufficiently strong and definite. No dentist should assume to know beforehand just how much time and money will be necessary to repair most cases presented. But to appear all at sea in his estimate, to declare that he has no idea of the expense, and to expect his patient to be unconcerned about it, does not show intelligence, or else it shows a want of confidence in the patient. By charting the work as well as he can, and explaining any part that is doubtful in character or expense, he will give himself a position, and place his patient in a position, that will conduce to a mutual confidence and good understanding. I hate these after-claps; these wonderments at the excessive cost, when you can't help yourself. Better make a friend of your patient at the beginning, explain difficulties and any unusual expenses on this or that tooth, the possible necessity of filling some surface not at first visible, and yet fix a proximate estimate of expense, so that when the work is perfected your patient is not met with a surprise when he meets his bill.

All May be Forehanded by living within their means and laying aside a little. A thorough determination to do this will surely accomplish it.

THE MEDICAL AND THE DENTAL.

It was a graceful and appreciative act of the American Medical Association having in charge the International Medical Congress, to recognize D.D.S.'s as associated brethren. It is a moral and material advance in the professional position of dentists.

But what is the specific significance of this recognition? Does it make us doctors of medicine? No. Does it make D.D.S. of equal significance with M.D.? No. Does it signify a mergement of the two professions? No; no more than it makes doctors of medicine doctors of dentistry. It cannot give the qualification to transfer the dentist into the office of the physician, nor the physician into the office of the dentist. It signifies what has been felt by the more intelligent physicians and dentists for a long time, that between us there is a natural bond of sympathy, of work, of association, of interests, and dignity of standing; and that because of this sympathy in our work in the healing art, of association of interests as mutually depending on each other, and dignity of standing as learned professions in the same field of investigation, we should be together in consultation, discussion and investigation.

Let us be thankful, therefore, for this step forward—of both Professions—to this common platform, a platform on which we can shake hands as brethren in a common work, with common sympathies, having for our common object the perfection of physical man.

This is as it ought to be. While intimate and fraternal association benefits both and disparages neither, the recognition of each by the other as a learned profession, adds to them both dignity, influence, and reciprocal advantages.

CONTACT IN TEETH.

I once made the statement, and I make it again, for I think it is true, and one fact upsets all theories,—I do not think in this city of New York any old man can be found with a good set of teeth unless those teeth are in contact.—J. T. CODMAN.

Two absurdities: One fact does *not* upset all theories. Isolated facts are quite apt to be wrongly interpreted; but a theory is such a weaving of facts as to produce a fabric of proof which no one fact could establish.

But the greatest absurdity is, that *contact* enhances the longevity of teeth. The assumption is as false as absurd. Our own teeth, especially our front teeth, have always stood apart, and we have never lost a tooth by decay, except the 1st and 3d molars, the 1st being lost before we were old enough to appreciate their value; and we do not remember that we ever had a tooth filled, except to have abraded grinding surfaces built up. We have attributed the continual soundness of our own teeth to

their natural separation, so that, during the 30 years of our dental practice our attention has been called to this coincidence in the teeth of others. We do not recall an exception to the rule that separation, not contract, promotes the longevity of the teeth.

BRAIN FORCING IN CHILDHOOD.

"Every dentist ought to be a missionary to preach against the heathenish forcing of young brains to learn lessons they can not comprehend at a sacrifice of nearly every physical perfection."

The doctrine of this quotation looks reasonable. It *is* reasonable. And yet the superintendent of a State normal school told us not long since that such a doctrine was *un*reasonable,—that he did not expect children to understand a half they were taught. He simply required his young pupils to memorize their lessons; the understanding might not come for many years. "You cannot reason with children," said he; "that process comes at a maturer age. Your teachings must be dogmatic. They are to take as truth what you and your books tell them, because you say it is truth. The first five or eight years of a child's schooling is merely memorizing."

We believe this teacher's pernicious nonsense is the foundation of much of the absurdity and injury of popular education.

Does Oxyphosphate Injure Teeth?—Dr. C. L. Hungerford says: Phosphate of zinc is of almost universal utility, but this valuable material is deprived somewhat of its usefulness by its reported dangerousness. It is claimed by some that its use will entirely destroy the integrity of the tooth bone, and devitalize pul's even when used in the smallest cavities.

This is the first time we have heard that oxyphosphate was injurious to the tooth. We wish Dr. Hungerford had given his authority, and stated how it is supposed to injure the teeth. The acid, uncombined with the alkali of the powder, might be injurious, but in the chemical combination both are neutralized. How can this neutral cement be deliterious to the teeth?

Oregon has passed a law regulating the practice of dentistry. Dr. S. J. Barber, formerly of Chicago, is a member of the board of examiners.

The celebrated Boerhaave, who was once addressed by a Chinese mandarin as the "physician of Europe," remarked on his deathbed that he should leave "three most excellent physicians behind him;" and when asked by his attendants who the three distinguished physicians were, replied: "Diet, Air, and Exercise."

Nineteenth Century Sense.—The Paradox of Spiritualism. By John Darby. Philadelphia: J. B. Lippincott Co., 1887. Price, \$1.00.

In perusing this book we have been interested in many things and disappointed in many things. The style is labored, and shall we say unnatural? Or shall we say spiritistic? The composition, divisions and general thread of the subject is,—well, we will say, rather singular. The general position (for we can hardly say he takes a specific position) is,—well, it is a paradox. The author's "Conclusion" we will give in his own words:

"The outcome of all contained in the present volume is that nothing is denied as to possibilities in the way of spiritistic things, but that perfection as to life and living is found when the instant appreciation is reached as to a circularity and wholeness lying in 'state of mind.' With the last word, impression is desired to be deepened concerning the spiritual part of a man; that which is, in reality, the only man, the part that travels without the aid of either steamboats or locomotives, the part that wills and that finds movement in will, the part that is to be fed by imaginary meals, the part that makes and unmakes. Who that understands will doubt the sensitive, or doubt as to what may be seen by himself or herself? Is it not simply undeniable and irrefutable that mediumship is one with cultivation; sight of ships by him who cultivates ships, sight of poems by him who cultivates poetry, sight of scores by him who cultivates music, sight of designs by him who cultivates architecture?"

A Summer in Old Port Harbor, by W. H. Medcalf, D.D. S., New Haven, Conn., is an imaginary scene at one of our sea-side resorts, portraying many incidents that must have belonged to actual life. It is evident "he must have been there." We are sorry he could not have made his group of hunters and fishers, singers and story tellers, on this lonely island, without their punch-bowls and pipes; but we suppose such a description would not have been true to the life in many instances. "The more 'o the pity." After the young ladies arrive (and how generally the company of ladies have an elevating influence) there is improvement all around, and an enjoyable vacation is the result.

The Colorado Dental Society had a successful meeting for their first, at Denver. From the program of their two days' sessions, we judge they could have had little time for play, and all must have been edified. One naughty man, however, must have disturbed the temper of the conservatives. His subject was, "To Thine Ownself be True." Perhaps in Colorado such a theme is considered proper, but we once read an essay before an eastern society, entitled, "The Dignity of

Our Calling," and was immediately set down on by three prominent members. We had attempted to show that in our calling to the dental profession we brought not merely our skill, but our whole selves, with our habits, our morals, and the very character of our lives: all had their influence to make us a success or a failure. In their opinion, patients had nothing to do with what a dentist was out of his office. But how difficult it is to separate ourselves from the influence of our habits and our real character. We all have an unconscious influence for good or evil, independent of our words or our acts. The only way, therefore, to be surrounded with a healthful, fragrant, attractive, personal atmosphere is *to be true to ourselves*.

At the First Commencement of the Dental Department of the Central University of Kentucky, the degree of D. D. S. was conferred (June 14, 1887) on the following gentlemen: J. C. Blair, Mississippi; J. W. Creed, Kentucky; W. W. Griffiths, Texas; W. P. Moore, Illinois; E. F. Morgan, Florida; C. K. Bungon, Iowa; J. C. Steen, Ohio; W. W. Steen, Kentucky; J. W. Trainor, Indiana; J. Van Eldren, Kentucky.

CINCINNATI, O., June 27, 1887.

The National Association of Dental Faculties will meet at the Ebbitt House, in Washington, D. C., on Saturday, September 3d, 1887, at 10 o'clock A. M.

By order of the Executive Committee.

C. N. PEIRCE, *President*.

H. A. SMITH, *Secretary*.

The Missouri Dental Society had a fine meeting at Kansas City, in June. The character of their officers for the ensuing year gives promise for still greater things next year.

The Chicago Dental College matriculated 102, and graduated 39, this year.

The University of Pennsylvania graduated 41 dental students at their last session.

The Minnesota Dental Society has just had a successful meeting. Dr. Jennison's presidency for the ensuing year will be a guarantee for another next year.

If a coil of sheet zinc is put into the water in a vulcanizer, it will prevent the formation of much of the black oxide which is found on iron flasks and clamps. After the zinc has been used three or four times, the flasks will soil the fingers but very little when handled.

Miscellaneous.

THE BICYCLE AND TRICYCLE.

An extract from a paper read before the Rochester Academy of Science, January 10, 1887, by Geo. E. Blackburn, M. D.

Bicycles and tricycles afford incomparably the best and most agreeable form of exercise yet devised; better than gymnasia, and health lifts, because they take the cyclist into the pure fresh air and sunshine; better than walking, rowing or horse-back riding, by exercising more muscles, more evenly and gently. With their hollow back-bones, forks and felloes, and delicate wire spokes their weight is reduced to a minimum without sacrifice of strength; with their exquisite anti-friction bearings, friction is almost abolished, and with their spider wheels, rubber tires, and spring-supported saddles, the jar of riding over the inequalities of the roadway is largely neutralized and the happy possessor of a good modern bicycle or tricycle may speed along over a fair country road at his ease about three times as fast as he could walk, and with less than one-half the exertion. * * * The idea that the muscles of the legs only are developed by cycling is common but erroneous. Nearly every muscle in the body is brought in use, those of the lower limbs for propulsion, those of the trunk for balancing, those of the upper limbs for both balancing and propulsion; the heart beats fuller, quicker, and more freely, and sends the blood more rapidly to the lungs to be renewed and revived by the deeper draughts of pure fresh air, and then onward to the remotest capillaries, renewing and recreating every nerve and muscle cell; the tired brain is relieved of its weary load of surplus blood, and the happy cyclist returns home from his run of five, ten or twenty miles not wearied out, but refreshed and rested; with an appetite and digestion like a wood-chopper, and a capacity for sweet and restful sleep that goes only with a clear conscience and a healthy body. * * The tricyclist though neither so graceful nor so swift as the bicycle, is nearly or quite as excellent in its effects on the health, and is *the* form of exercise for delicate women, being extremely beneficial to many to whom walking is unendurable torture. I know of those of 'spinal irritation' so called, that could not bear even short walks, and so failed of needed exercise, that improved so much through riding the tricycle that their health is now perfect, and they have made long tricycle runs (one 50 miles in a single day) and are able to walk three to five miles or even more at a time without special fatigue.

Col. Pope, who is perhaps the best authority, estimates the total number of cyclists (that is men and women riding high class bicycles and tricycles) at more than 50,000 in this country, and 350,000 in Great Britain. Last year the Pope Manufacturing Co. of Boston, offered five different grades of bicycles, and three styles of tricycles. My own mount, a 53 inch Columbia Light Roadster, weighing but 37 pounds, when ready to ride is a model of strength, grace and lightness, and really leaves little to be desired. Though so light it is staunch and strong, and now, after more than a year of hard riding, over roads not always the best, is in as good condition as when purchased, and has

cost nothing for repairs but for the replacement of two spokes broken by a careless porter in a hotel baggage-room.—*Medical Brief.*

LEADERS IN LANGUAGE AND REFORMERS IN ORTHOGRAPHY.

The Philological Association, in session at Burlington, Vermont, recently elected the following officers for the coming year: President, Professor Hall of the Metropolitan Museum of Art, New York; Vice Presidents, Professor Seymour, of Yale; and Professor Charles R. Lammann, of Harvard. The above officers and Professor Dodge, of the University of Michigan; Professor Gildersleeve, of Johns Hopkins University; Professor March, of Lafayette College; Professor Perrin, of the Western Reserve College, and Professor Whitney, of Yale, were chosen as Executive Committee. The spelling reform association elected the following officers: Professor March, of Lafayette College, President; Vice Presidents, Professor Whitney, of Yale; Professor Child, of Harvard; President Bernard, of Columbia; Dr. Wayland, of Philadelphia, and Professor Garnett, of the University of Virginia; Secretary, Melville Dewey, of New York; Corresponding Secretary, C. P. G. Scott, of New York, and Treasurer, C. J. Sprague, of New York.

A Wise Wasp. While sitting one summer day at the side of the house on a platform which served as a piazza, but was roofed only by the branches of two large trees, something dropt on my head and rolled into my lap, when I saw a large white bodied spider in the clutches of a small wasp. Hastily brushing these unceremonious visitors on to the floor, I watched to see if the wasp would succeed in flying away with his huge enemy. After a struggle the spider lay quiet, and the wasp ran around, seizing one part, then another, but finally went away, as I supposed, for help. In about a quarter of an hour he returned, still alone, and began trying again, as I thought, to find some place by which he could seize the round body and carry it away. Again he departed without his spider. This time I watched him and saw him disappear at the edge of the lawn, under a pear tree, and, following, found him, after some searching, diligently at work with another wasp enlarging a hole in the ground, having already thrown out quite a little mound of earth. I was surprised, for I did not then know that any kind of wasp lived in the ground.

I returned to the piazza, and soon, when the wasp came back, I was convinced, by more careful watching, that he was measuring each part of the spider's body instead of trying to get hold of it. The antennæ seemed to be the organs mostly employed in this operation. When he went home again, I was before him, and saw him meet his co-worker, put his head close to his, and evidently informed him that the doorway was not yet big enough, for they fell busily at work enlarging it. Then more measuring, more digging, till, after three hours, he returned, this time, with his friend, and they carried away their prey and bestowed it in their underground home.

Question for studious Agassizites: How many kinds of wasps are there, and how many have adopted the metric system?—*The Owl.*

Remedy for Neuralgia—Dr. John T. Metcalf, a well-known physician of New York, writes to the *Boston Medical and Surgical Journal*, that the following formula was learned by him from one of his patients whom he sent to Cuba with the hope that a change of climate would afford relief from sciatica. A French physician who there attended him, used this remedy with the best results, and Dr-Metcalf has tried it so often since with success, that he speaks of its value with great confidence: Equal parts of the tinctures of aconite root, colchicum seeds, belladonna, and actæa racemosa. Six drops to be taken every six hours till relief is felt. The Doctor says, that “as an internal remedy it is worth all others put together of which I have knowledge.”—*Am. Druggist*.

How to Cure Warts.—Place the thumb on the wart, and press it against the bone. Move the wart back and forth on the bone till the roots become irritated or sore, when the wart will disappear. I have had quite a number on my hands, and have got rid of all of them in this way.

A stiff paste of glycerine and red lead will be found useful in making a joint air or gas proof. It is used at the joint between the neck and cap of the flasks for generating oxygen gas.

To remove paper labels from old bottles, wet the face of the label with water, and hold it for an instant over any convenient flame. The steam penetrates the label at once, and softens the paste.

Tempering Instruments.—It has been discovered that drill points heated to a cherry-red, and tempered by being driven into a bar of lead, will bore through the hardest steel or plate glass without perceptibly blunting.

The economy of nature made a bad break when it supplied pigs with tails. A pig's tail is of no more use to the pig than the letter “p” is to pneumonia.

To keep postage stamps in the pocket or memorandum book without sticking, a New Orleans Post Office clerk advises people to rub the sticky side over the hair two or three times. The oil of the hair coats the mucilage and prevents it from sticking.

Boils may generally be dissipated by a free use of alkalies—bicarbonate of soda is good.

To Harden Tools.—A. E. Tucker claims that he has successfully edged grooving tools for chill rools by dipping the actual cutting portion in mercury. No more of the steel than is actually necessary should be dipped, as, while imparting extreme hardness, it naturally makes the body of the tool extremely brittle.

Potato is used to clean steel pens, and generally acts as a pen-wiper. It removes all ink crust, and gives a peculiarly smooth flow to the ink. Pass new pens two or three times through a gas flame, and then the ink will flow freely.